

# **An Awfully Big Freight Adventure**

## ***Midwest Freight Planning in the Bi-State Region***

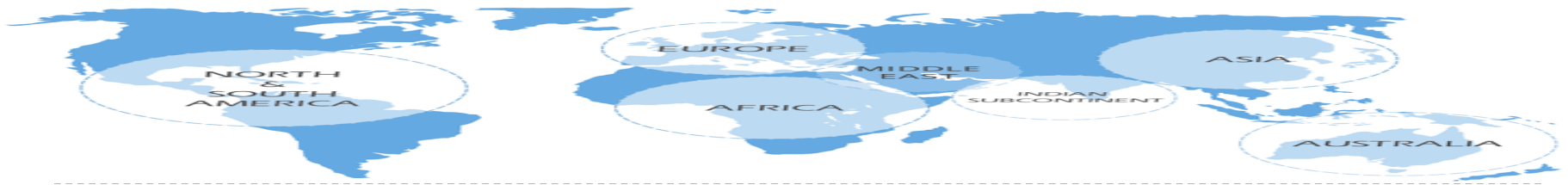
**Bi-State Region Freight Plan  
Plan Prepared by Cambridge Systematics, Inc. with Parsons  
Brinckerhoff, A. Strauss-Wieder, & InTrans**

October 6, 2016 – ILDOT Fall Planning Conference

# *Midwest Freight Planning in the Bi-State Region*

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- ▶ Trends in Freight Transportation
- ▶ Freight Plan Process
- ▶ Bi-State Region Commodities & Network
- ▶ Results and Recommendations
- ▶ Freight Plan Implementation



## Global Trends Shaping Freight Movement

- ▶ **More complex and unpredictable economies**
  - ▶ Urban growth, emerging countries with > youth (consumers), developed countries with > senior (experience seekers)
- ▶ **Supply chain flexibility**
- ▶ **Environmental sustainability**
- ▶ **Changing technologies**
  - ▶ Larger containers/ships/trucks, automated vehicles, communications

# National Emphasis

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## ▶ SAFETEA-LU

- ▶ Freight Planning Capacity Building
- ▶ Programs Aimed at Global Connectivity, Freight Mobility & Economic Productivity
- ▶ Support for Intermodal Freight Facilities

## ▶ MAP-21

- ▶ National Freight Network & Strategic Plan
- ▶ Refined Programs Aimed at issues in SAFETEA-LU

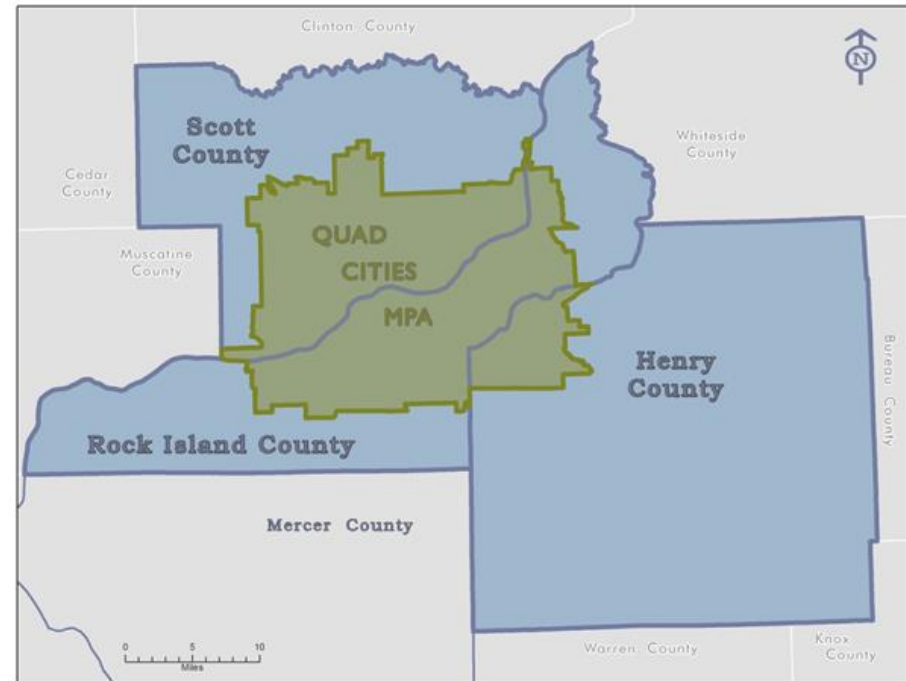
## ▶ FAST

- ▶ National Multimodal Freight Policy & Strategic Plan
- ▶ New National Highway Freight Program
- ▶ New authorities & requirement to improve project delivery and finance

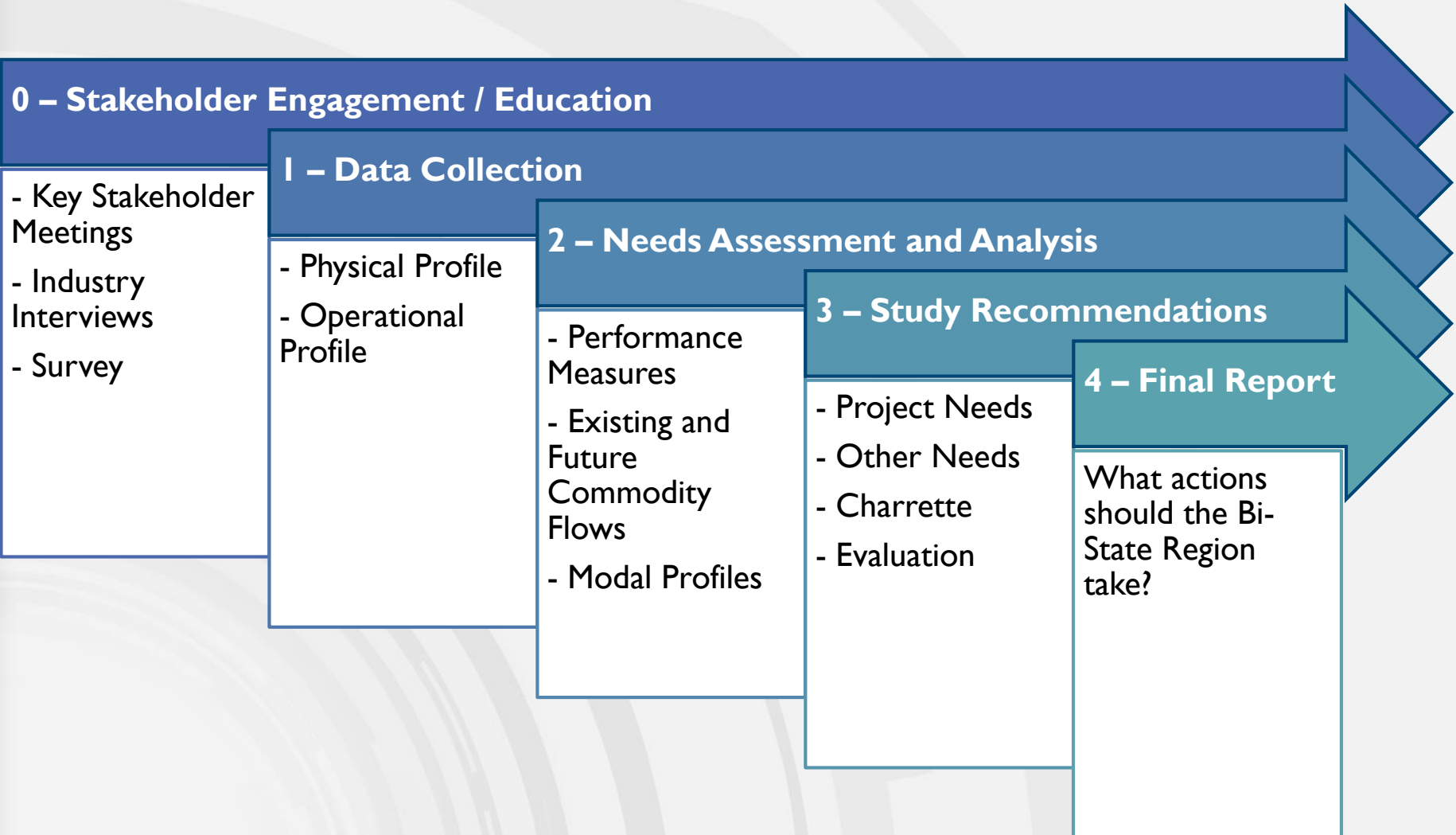
# Trends Related to the Bi-State Region

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- ▶ Expansion of Panama Canal
- ▶ Ag Production and Export
- ▶ Reshoring/Nearshoring
- ▶ E-Commerce
- ▶ Energy Diversification and New Sources
- ▶ Freight Workforce



# Freight Plan Schedule and Major Milestones



- ▶ Bi-State Regional Commission-MPO/RPA
- ▶ Iowa and Illinois Departments of Transportation
- ▶ Economic Development
- ▶ Modal Industry –Barge, and Truck
- ▶ Corps of Engineers
- ▶ Corporations/Businesses
- ▶ Farm Bureau
- ▶ Railroad
- ▶ Airport

**Bi-State Region  
Freight Study  
Steering Committee**

**Purpose:**

**Provide Direct  
Feedback**

**Identify Other  
Stakeholders**

**Review Draft  
Documents**

## ▶ Interview Issues

- ▶ On-time delivery & Travel Time
- ▶ Transportation Cost and Reliability
- ▶ Service: Product Damage Prevention
- ▶ Captive shipping (One Source) – Need for Choices/Competition

## ▶ Online Survey Issues

- ▶ Access to Connecting Modes
- ▶ Access to Coasts for Global Markets
- ▶ Trucking Size and Weight Limits
- ▶ Captive Shipping
- ▶ Need for Intermodal & Transload Facilities
- ▶ Highway & River Capacity Improvements
- ▶ Expand Air Cargo
- ▶ Add Port Facilities

## Outreach and Engagement

### Opportunities:

Key Stakeholder Meetings (3)

Industry Interviews (9)

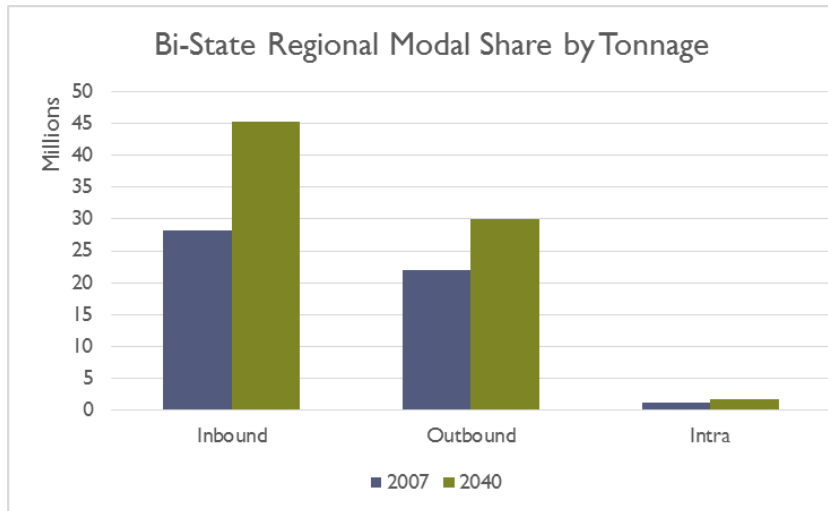
Online Survey

Recommendations  
Charrette

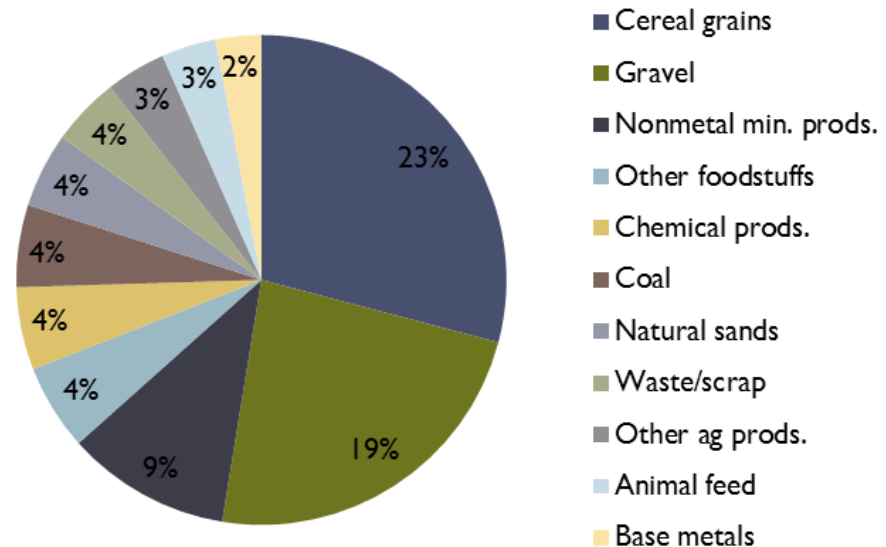


# Bi-State Region Freight Profile: Commodities

## Directional Share by Tonnage 2007/2040



## Commodity By Tonnage 2040



Source: Parsons Brinkerhoff analysis of disaggregated FAF2.2 2007

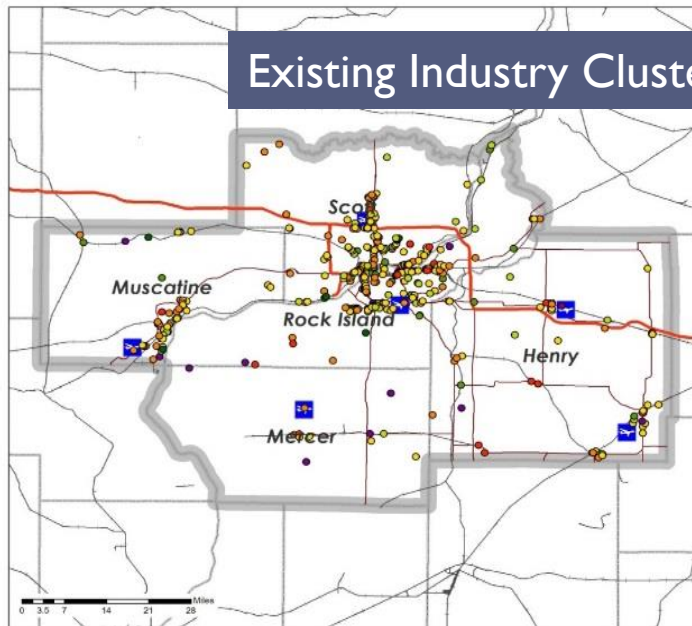
# Bi-State Region Freight Profile: Industries

(NAICS) Industry	Highway	Rail	Water	Air	Pipeline
(11) Agriculture, Forestry, Fishing and Hunting	●	●	●	○	○
(21) Mining	●	●	◐	○	●
(22) Utilities	●	●	◐	○	●
(23) Construction	●	◐	○	○	○
(31-33) Manufacturing	●	●	○	◐	○
(42) Wholesale Trade	●	●	○	○	○
(44-45) Retail Trade	●	◐	○	◐	○
(48-49) Transportation and Warehousing	●	●	○	◐	○
<b>Key:</b>	Less important ○	◐	●	More Important	

## Legend

### Freight Generators

- Agriculture
- Mining
- Manufacturing (Grain Prods.)
- Manufacturing (Wood Prods.)
- Manufacturing (Metal Prods.)
- Transportation
- Warehousing
- Primary Freight Network (41k)
- Rail Network
- State Truck Network



## Existing Industry Clusters

What we do well!  
Greater Share of  
Employment in:

### Manufacturing

- Machinery
- Primary Metals
- Food
- Furniture and related products

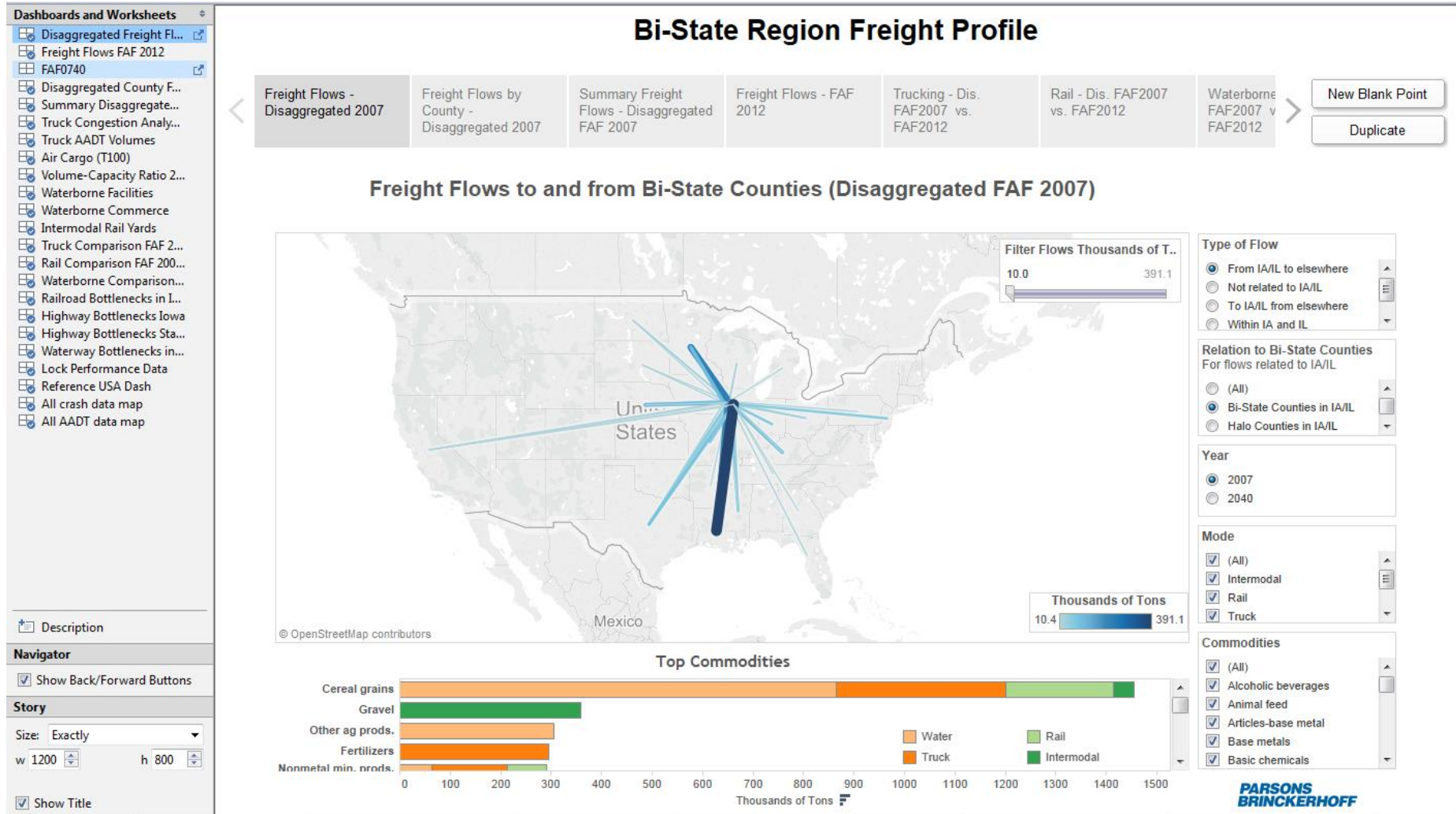


# Freight Database and Visualization Tool

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- ▶ **Database/Tool was developed to:**
  - ▶ Assemble different data sources in one place
  - ▶ Make it easy to query data and report results
  - ▶ Develop modal and commodity profiles
  - ▶ Identify hot spots and choke points
  - ▶ Help the study team formulate freight strategies and recommendations

# Bi-State Region Freight Profile



# Bi-State Region Highway Network

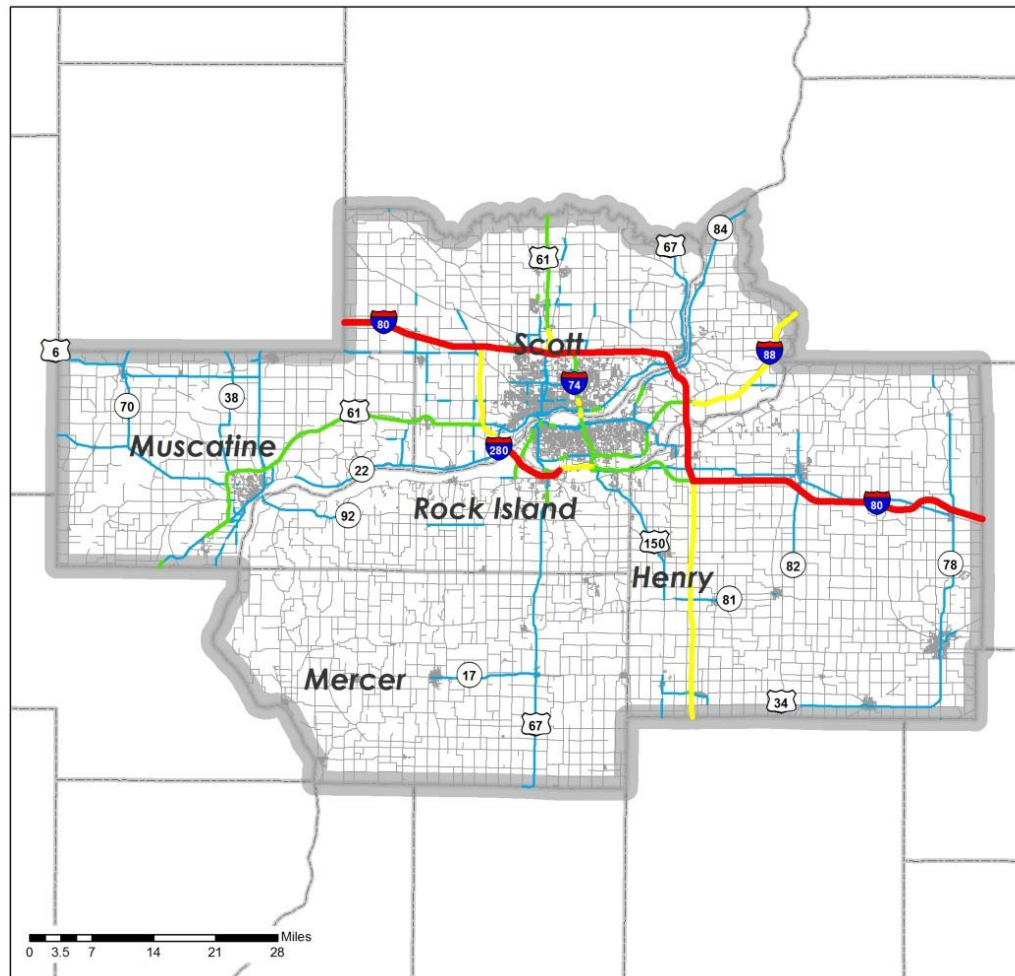
## Total Truck Volumes on the Bi-State Region's Highway System

### Legend

#### Truck AADT

- < 250
- 250 - 1,000
- 1,000 - 3,000
- 3,000 - 5,000
- > 5,000

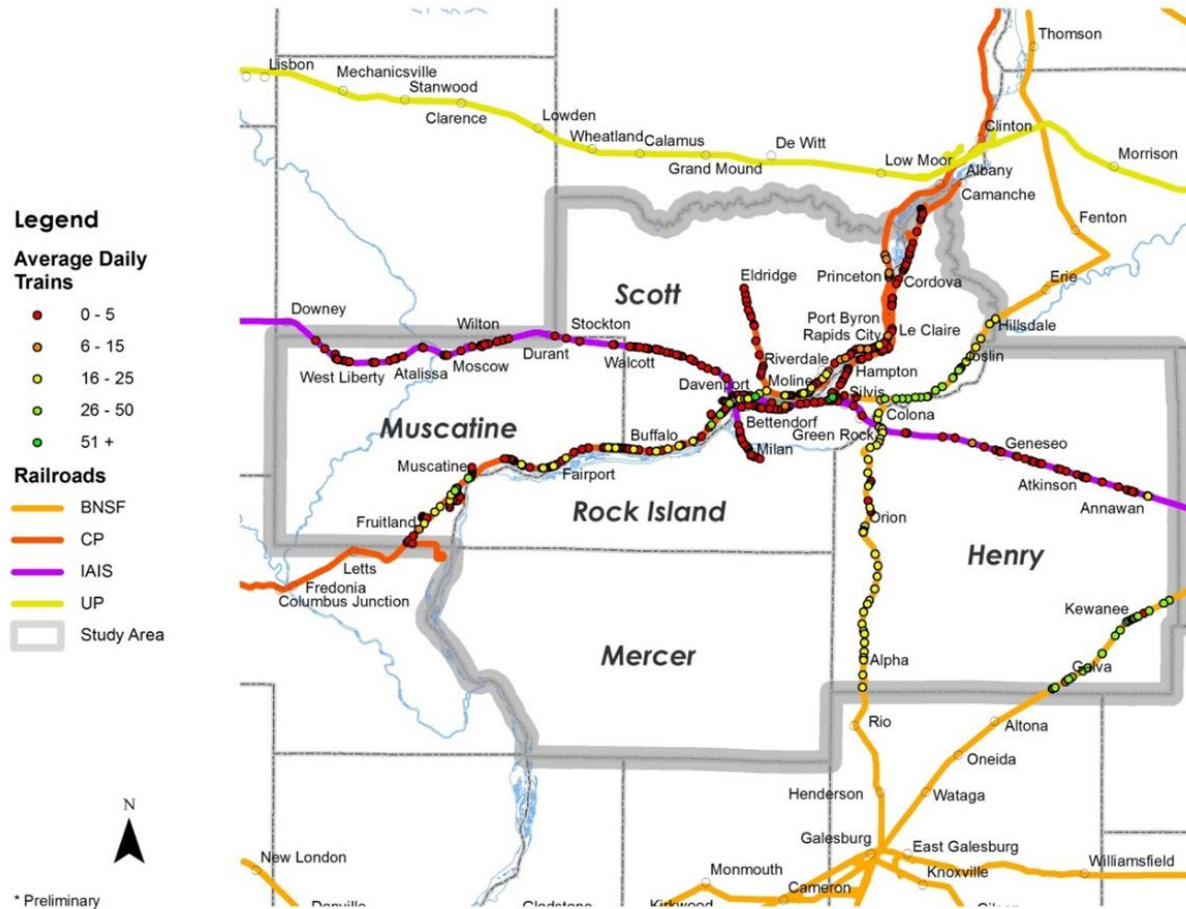
Bi-State  
Regional  
Commission  
Counties



Source: Illinois DOT Illinois Technology Transfer Center, <http://gis.dot.illinois.gov/gist2/>; Iowa DOT GIMS Database, <http://www.iowadot.gov/gis/downloads/default.aspx>. Accessed Oct. 14, 2014

# Bi-State Region Rail Network

## Study Area Railroad Operators and Average Daily Trains





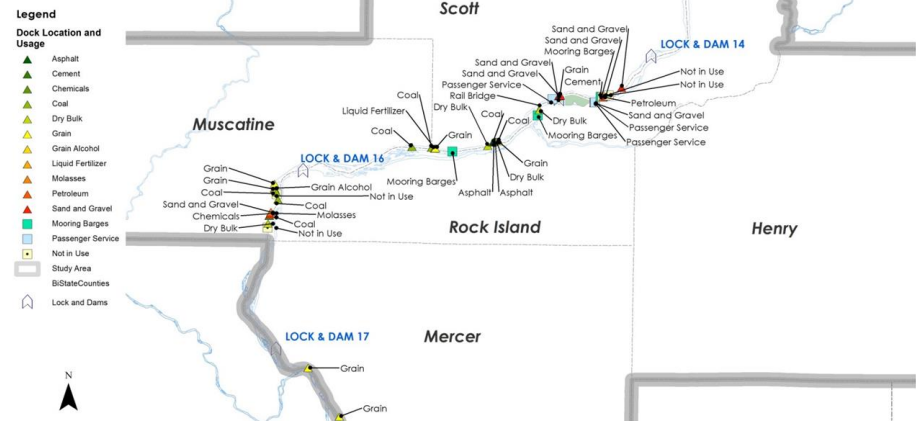
# Bi-State Region Air and Water Network

## Bi-State Region Airports



Airports classifications are according to the 2013-2017 FAA NPIAS Report

## Mississippi River System, Bi-State Region



Source: U.S. Army Corps of Engineers Navigation Data Center, 2013

# Bi-State Region Freight System

## *Key Needs, Issues, and Opportunities*

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- ▶ **Economy** - Use the Bi-State Freight System Support the Region's Economy
- ▶ **Infrastructure** - Maintain and Enhance Highway System Infrastructure
- ▶ **Operations** - Promote Freight Rail System Operational Efficiencies
- ▶ **Access and Modal Options** - Increase Accessibility and Mobility Options for the Region
- ▶ **Resiliency** - Work Towards System Resiliency and Reliability



# Shape of Recommendations

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- ▶ **Types of Recommendations**
  - ▶ Projects
  - ▶ Operational
  - ▶ Policy
  - ▶ Organizational Changes and Partnerships
  - ▶ Funding
- ▶ **Consider Sequence of Actions**
  - ▶ Short-term – “quick wins”, and initiate next steps
  - ▶ Mid- and Longer-term – study feasibility, implementation - project design and construction

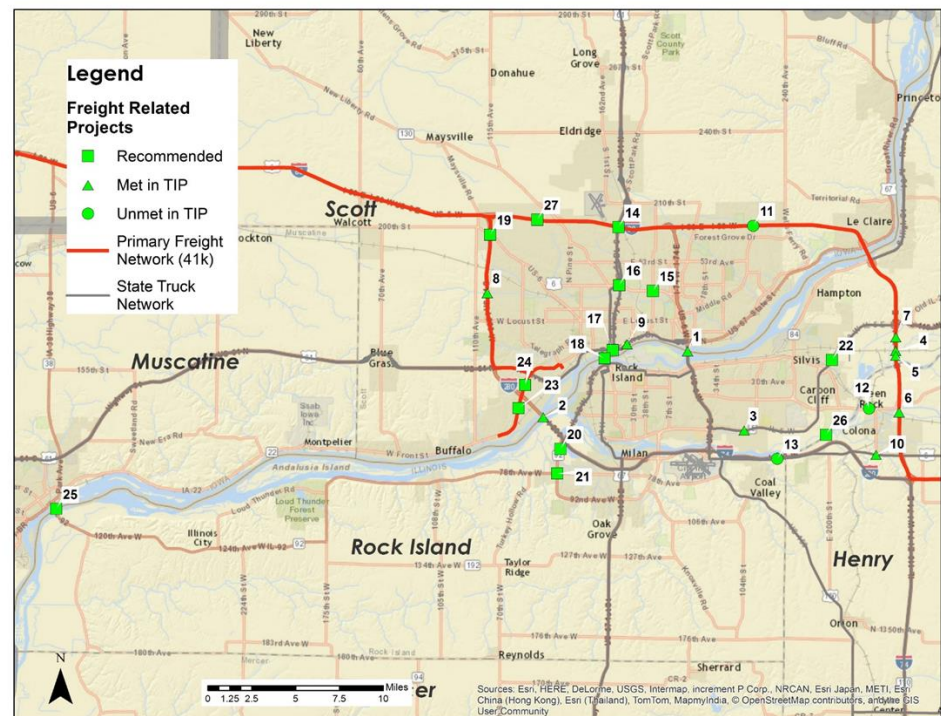
# Freight Stakeholder Input – Most Critical to Improving Freight Mobility

## For Roads

- ▶ Highway Capacity Improvements
- ▶ Roadway and Bridge Maintenance
- ▶ Highway System Interchanges
- ▶ System Management/Operational Strategies



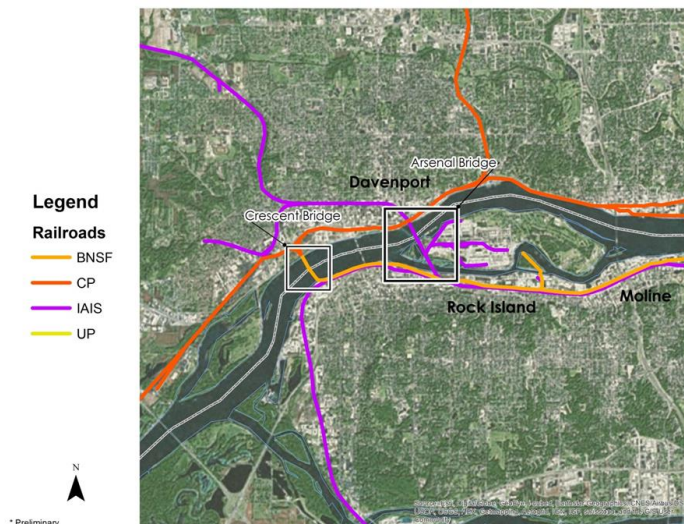
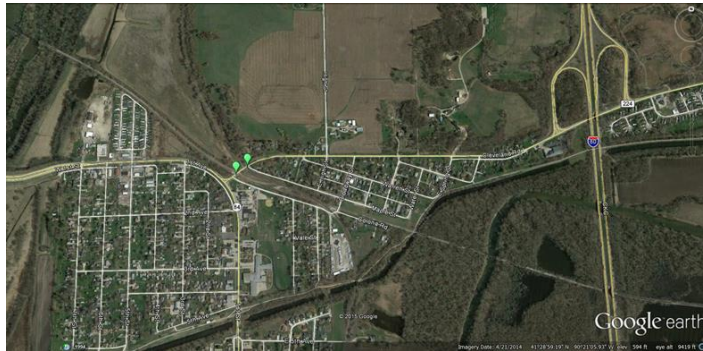
## Recommendations



Input Source: Cambridge Systematics 2015 Bi-State Region Freight Plan; Question 22., page A-25-26.

# Freight Stakeholder Input – Most Critical to Improving Freight Mobility

## Recommendations



## For Other Modes

- ▶ Improve Rail/Port Connections
- ▶ Study Container Port in Muscatine
- ▶ New Transload/Intermodal Facility
- ▶ Expand/Attract Air Cargo at QCIA
- ▶ Expand/Add Port Facilities & Landside Access
- ▶ Improve Locks
- ▶ Improve Rail Bridges and Lines 286K-compliant or New Bridge



Input Source: Cambridge Systematics 2015 Bi-State Region Freight Plan.

# Suggested Evaluation Framework

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- ▶ **Based on TIGER Benefit-Cost Analysis Guidance**
  - ▶ Proven means of comparing “apples and oranges”
  - ▶ Accepted by USDOT, may be elevated in reauthorization (TBD)
  - ▶ Produces monetized Benefit-Cost Ratios
- ▶ **Key monetized metrics:**
  - ▶ State of good repair (avoided maintenance costs)
  - ▶ Economic competitiveness (reduced user costs)
  - ▶ Livability (improved quality of life)
  - ▶ Sustainability (environmental benefits)
  - ▶ Safety (reduced crashes)

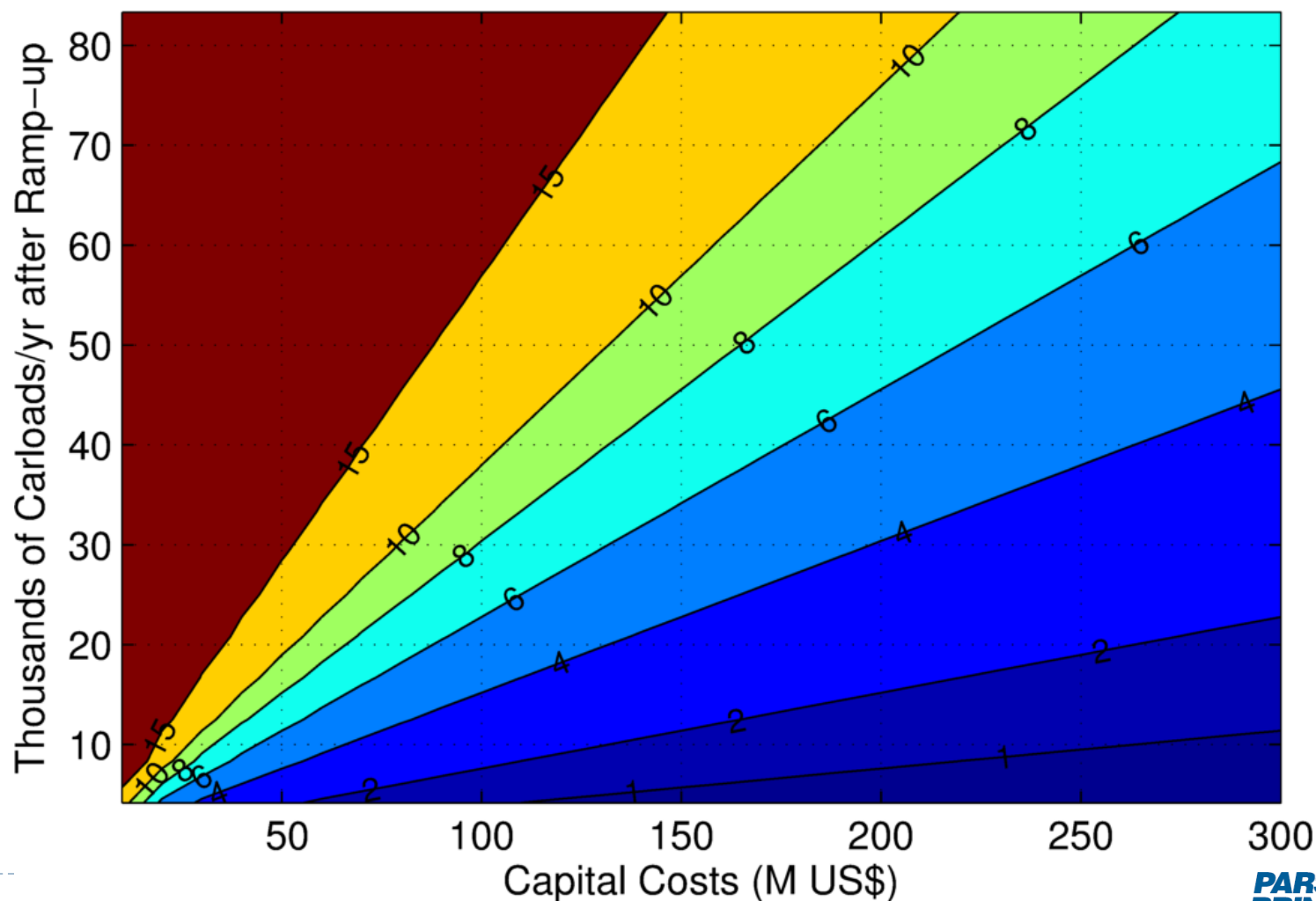
# Rail Bridge Replacement -- Description

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- What would be the societal benefits of a rail bridge replacement project that allowed trains to be faster and carry heavier payloads?
- Mississippi River, location not specified
- B/C based on cost, volume of rail traffic
- Benefits considered
  - » Incremental changes versus no-build conditions (future use of existing bridges may continue)
    - Changes in rail capacity (heavier railcars, more/longer trains, etc.)
    - Changes in operating and maintenance cost

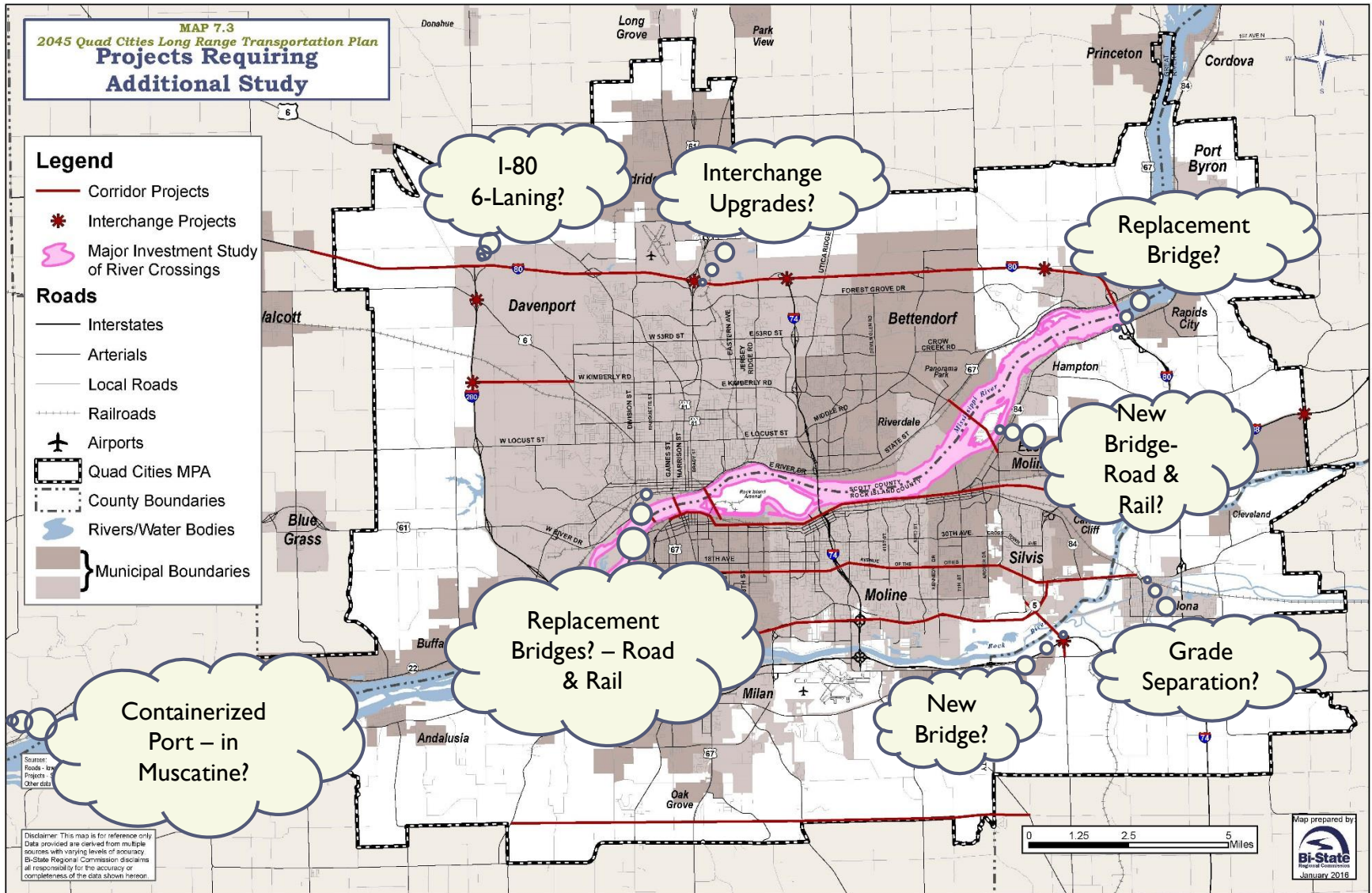
# Rail Bridge Replacement -- Description

## B/C Ratio of Rail Bridge Projects @ 7%





# Requires Additional Study



# Bi-State Region Freight Plan Implementation

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- ▶ Seek studies noted in LRTP
- ▶ Establish on-going Freight Stakeholders Group
- ▶ Enhance staff capabilities in Freight Data and Analysis
- ▶ Foster Collaboration to Implement projects
- ▶ Monitor implementation





For more information,  
visit our website:  
[www.bistateonline.org](http://www.bistateonline.org)

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